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Full Length Research Paper

Factors Affecting Food Quality and Its Impact on Customer Satisfaction: The case of Hawassa Hotels, Ethiopia

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Abstract

Customers are becoming increasingly knowledgeable and value-conscious. Therefore, food establishments need to provide high-quality food and beverage services, thereby meeting customer satisfaction. The study analyzed the factors affecting food quality and its effect on customer satisfaction. A Descriptive and explanatory research design was employed using quantitative and qualitative research approaches. The data was collected by non-probability, convenience, and purposive sampling techniques. The effective sample size is 372 participants. Data were analyzed using descriptive and inferential statistics, and a multiple linear regression model was applied. Additionally, the Customer Satisfaction Score was employed to measure customer satisfaction. The result indicated that all food quality attributes positively and significantly correlate with customer satisfaction. The study revealed that food quality attributes like menu design, physical environment, and nutritional value of food items highly affect customer satisfaction in the hotels. The main implication drawn from this study is that to ensure customer satisfaction, food and beverage managers should constantly plan, construct, improve, and observe physical environments, menu design, and nutritional value of food items.

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1. Introduction

Meeting the expectations of customers is critical to the growth and sustainability of the hotel business in today's competitive business environment (Malik, Shahab, Farheen, Muhammad, & Mansoor, 2020). This is because, in the hotel industry, customers are coming from different places and stay within the hotel. Under the umbrella of hospitality, the tastes and preferences of people far away from home acquire good experiences from travel, lodging, recreation, restaurant and managed services (Sanjeev & Deepali, 2017). The hotel industry is changing rapidly as a result of technological advancement and socio-economic transformations. Therefore, hoteliers will be proactive in terms of guest preference, food quality, and changing habits of the customer (Victorino, Verma & Plaschka, 2005). It is argued that not only designed to offer accommodation services but also to supply an area to eat where food would be good or a minimum of palatable and safe to eat (Victorino et al., 2005). Studies were conducted on different types of hotels; for instance, the impact of food quality on customer satisfaction on different dimensions was partially considered (Kannan, 2017). However, little attention has been paid to the linkage between the quality of food and customer satisfaction. Therefore, this study has focused on different dimensions of food quality: tastiness of the food, menu design, nutritional value, food safety, and physical environment of the food serving area. The primary search for works on the quality of food and customer satisfaction within the literature indicated that just about all previous studies were applied in countries other than Ethiopia. More importantly, the previous studies did not consider variables such as nutritional value, tastiness and food safety. As Hwang and Zhao (2010) stated, customer satisfaction is an indication of customers' loyalty of revisiting and repeat returns to a restaurant. Similarly, Vavra (2002, p, 13) described that "customer satisfaction is the principal standard for determining through the product/service delivered to customers and the accompanying servicing". Furthermore, Homburg and Stock (2004) labeled customer satisfaction as the extent to which a product or service meets or exceeds the expectations of customers.

The rapidly changing lucrative market environment within the hospitality industry has advised hotel managers to look for leading effective strategies to create customer satisfaction, and sustain their businesses, and stay competitive through providing a quality product. Namkung and Jang (2007) regarded food quality as a key factor that affects customers' overall evaluation of a restaurant and repurchase intentions. In line with those authors, the quality of food is evaluated by the taste, freshness and the way the food is being presented to customers. Hyun and Han (2012) stated that the quality of a restaurant's food and its physical environment was the perception that an honest or affordable price encom-

passes a positive impact on consumer brand associations. Although Reece, Kivela, & Inbakaran (2005) included the food in explaining dining satisfaction and predicting return patronage at restaurants, food quality was not one of all the foremost interests in their study. It's again surprising to note that concrete evidence has yetto be observed for verifying the extent to which the food itself influences customer satisfaction.

Above all, the researchers were highly motivated to conduct this study as most food quality-related studies have targeted atmospheric and repair conveyance but frequently ignore the essentialness of food itself. For instance, many studies investigated a service quality measure, dining service (DINESERV), physical environment, concentrating on measuring the extent of restaurant climate and representative service just like the impact of music and ambiance of the restaurant but the food quality was not their interest. Again it's also astonishing to notice that no solid proof has been evidenced to confirmthe degree to which the food itself truly impacts the hotel's customer satisfaction in the case of Ethiopian hotels. Therefore, this study analyzes the factors affecting food quality and its impact on customer satisfaction in four-star hotels in Hawassa city, Ethiopia. This paper intends to address the issues of food quality, particularly focusing on food's hotness, freshness, neatness, tastiness, nutritional value and appropriate temperature in four- star rated hotels. On top of that, this research employed customer satisfaction scores beyond the DINESERVE model.

2. Literature review

2.1. Food quality

Food quality has broadly y been acknowledged as an essential component within the operation of any hotel, and so, it influences on customer satisfaction and future purchaseintention (Ha & Jang, 2012). Sulek & Hensley (2004) demonstrated that when consumers decide to visit a hotel or restaurant, they are likely to contemplate food quality which plays a key role in reflecting the core attributes of the hotel. Similarly, food quality represents the foremost significant factor in predicting the perceived value and satisfaction of consumers (Zool et al., 2018). Among different food quality attributes, this study incorporates five significant factors and the literature is also stated as follows:

2.2.1. Food safety

Food safety management iss the foremost basic aspect of hotel management (Shi, 2017). With the solution of food and clothing in China, food safety problems began to vary from quantity safety problems to quality safety ones. The Hazard Analysis and Critical Control Point (HACCP) system is an internationally recognized important component of food safety management practices, which may be applied at all stages of the food supply chain within the worldwide food industry (Wallace et al., 2014). It had been a scientific approach to identify, assess, and control the assembly process of a specific food

which existed altogether with food production and sales, purchase and transportation, storage and serving protecting safety food is part of the management activities from an Ethiopian perspective (Ayalew, 2013).

Tsola, Drosinos and Zoiopoulos (2008) found that the HACCP system could effectively reduce the last word yield of microorganisms during the slaughtering process of modern poultry slaughterhouses and food safety management systems. Europe and other countries familiarized laws and regulations on HACCP, imposing the HACCP system in food enterprises, and so on to ensure food quality and safety (Bilska et al., 2016). The detailed flow of food and handling practice is illustrated in Table 1.

Table 1: Food flow and sample food handling practices

Flow of food	Sample For Handing Practices
Purchasing	1. Buy from reputable vendors, grocery stores, or food-buying clubs. 2. Check use-by dates to purchase the freshest foods. 3. Place frozen foods in a cooler between store and center during transport. 4. Place fresh meats in a separate area from ready-to-eat foods.
Receiving	1. Store foods immediately. 2. Avoid cross-contamination. 3. Keep the receiving area clean.
Storing	1. Record the delivery/purchase date of food. 2. Use the oldest food first (FIFO). 3. Store chemicals away from food and other food-related supplies. 4. Maintain proper refrigerator, freezer, and dry storage temperatures.
Preparing	1. Wash hands frequently, properly, and at appropriate times. 2. Keep foods out of the "temperature danger zone" (41 °F—135 °F). 3. Prepare foods no further in advance than necessary. 4. Thaw foods properly.
Cooking	1. Use a clean food thermometer. 2. Cook the food to the proper internal temperature for the appropriate time without interruption. 3. Record internal temperatures.

Serving & Holding	1. Hold foods at the proper temperature, either below 41 °F or above 135 °F. 2. Record internal temperatures. 3. Monitor the temperature of hot-holding and cold-holding equipment. 4. Follow the rules for good personal hygiene.
Cooling	1. Chill rapidly. 2. Stir frequently. 3. Use shallow, pre-chilled pans. 4. Record internal temperatures. 5. Store appropriately.
Reheating	1. Reheat rapidly. 2. Reheat to an internal temperature of 165 °F for 15 seconds. 3. Record internal temperatures.

Source: Adapted from Bilska et al., 2016

2.2.2. Menu design

Ozdemir and Caliskan (2014) suggested that the menu has two meanings. The first definition is the range of food and beverage provisions made by a food service outlet. However, the second is a display bywhich a food service establishment communicates its offerings to customers. Similarly, Bowen and Morris (1995) defined the concept of menu design concerning how a menu card or display is made. Özdemir and NebiOğlu (2018, p,10) also described the concept of menu design as “The creation of a horny menu card that not only provides information but also directs customers' attention to the things that the food service establishment wants to sell more". As a result, these definitions highlight the crucial role of menu design that plays in restaurants and hotels' communication with customers. However, the researchers believe that definitions alone do not seem to be sufficient to know the conceptual structure of menu design. Therefore, in addition to definitions, examining its dimensions is important to deepen our understanding of the concept.

Existing research on the association between menu item position and item sales has produced mixed findings. The study conducted by Sobol and Barry (1980) was an early attempt at investigating the impact of menu item position on the item menu board which significantly and positively influences item sales. However, the research results of Bowen and Morris (1995), Ozdemir and Caliskan (2014), and Millano (2018) presented findings on menu design and customer satisfaction.

2.2.3. Food Taste

Taste is one of the sensory attributes of food that can be evaluated only after the consumption of food. Nevertheless, consumers try to predict the taste experience before consumption by using signals such as brand name, price, and food quality labels (Lodorfos & Dennis, 2008).In the food service context, there is a lack of research on how customers evaluate the taste of food,although there exist several research studies that have demonstrated the significant role of taste in food choice (O'Mahony & Hall, 2007) and satisfaction with restaurant services (Kivela et al., 2000).

Some researchers explain how customers evaluate food taste in the unique context of menu design. For example, Wansink and coworkers (2005) investigated whether menu item names suggestively influence the perceived taste of restaurant food. They found that when an item on a restaurant menu is labeled by an evocative name, it is perceived as tastier than when the regular name is used for that item. Allen, Gupta and Monnier (2008), and O'Mahony and Hall (2007) asserted the linkage between taste and culture, and conceive that consumers consider the cultural symbols and associations of food when they judge its taste besides sensory attributes of food such as appetizing nature of the food, flavor, salty and its blandly.

2.2.4. Nutritional value

The term nutrition is commonly aused to identify the components of a healthy, balanced, and nutritious diet and adapt them to the wants of specific populations to optimize health (Glanz et al., 2005). The community food environment has gained recognition as an important environmental determinant of diet quality and weight status. It can be defined as the number, type, and locationof food outlets in a certain geographical area. In recent decades, food environments have changed towards increased availability of food outlets offering relatively less healthy foods.

2.2.5. Physical Environment of Food Serving Area

The food serving area or restaurant does much to shape a place's brand image. As Ryu and Han (2010) stated, the quality of the service of hospitality firms greatly impacted on customer revisit intention and a restaurant's brand image. They argued that the physical environment of hotels or restaurants can be effectively utilized to strengthen the brand image of the hotels and even to reposition the guest's perceptual mapping among the competition to directly reinforce their customer satisfaction with the service encounter. Tax (2003) revealed that guest contact personnel and physical environment significantly and positively impacted on a perceived corporate image by new clients from a life assurance company.

Therefore, based on the stated literature above; the researchers proposed the following hypothesis:

H1: Food safety and customer satisfaction have a positive significant relationship

H2: There is a positive significant relationship between menu design andcustomer satisfaction.

H3: There is a positive significant relationship between the tastiness of food and customer satisfaction.

H4: There is a positive significant relationship between the nutritional value of food and customer satisfaction.

H5: A positive relationship exists between the physical environment and customer satisfaction.

2.4. The Link between Food Quality and Customer Satisfaction

An investigation of how food quality is perceived in relevance to satisfaction and behavioral intentions in hotels and restaurants revealed that the overall food quality significantly affects customer satisfaction and behavioral intentions (Namkung & Jang, 2007). Another study also investigated the effect of service quality and food quality in Korean ethnic restaurants and concluded that providing quality food is critical for customer satisfaction (Ha & Jang, 2010). Perceived product quality in hotels and restaurants is assessed by evaluating customers about the actual product (meal or food quality) and the place where a meal is delivered (physical environment). However, the physical environment and equipment were tangible dimension proposed by Razak, Nirwanto, & Triatmanto (2016). Sulek and Hensley (2004) stated three components of measuring food quality: safety, appeal, and dietary acceptability and located that food quality is the most significant factor affecting customer satisfaction compared with the opposite aspects of a restaurant including physical environment and repair quality. Another research model proposed by Namkung and Jang, (2007) found a linkage between food quality and customer satisfaction in addition to behavioral intentions. Raajpoot (2010) used food presentation, menu design, and serving size to live product quality or food quality within the food industry. This research adapts measuring items from the previously mentioned research to analyze food quality through the tastiness of the food, nutritional value, menu design, food safety, and physical environment of the food serving area.

Food quality was mutually placed as the foremost determinant of customers' decision to repurchase. This finding is to some extent consistent with Ryu and Han (2010) that revealed that 'quality of food' like deliciousness is a significant predictor of customer satisfaction within the quick-casual restaurant industry. The finding also has indifferent conclusions with others (Kim et al., 2009; Sulek & Hensley, 2004). Their analysis showed that quality of food, like food taste and freshness, were the strongest predictors of customer satisfaction. As corroborated by Treiblmaier and Garaus (2023) providing immutable, shared, accessible, and up-to-date information throughout the agri-food value chain for customers as well as employing technologies and protocols help enhancing customer satisfaction.

2.5. Theoretical Framework and Models

2.5.1. SERVQUAL (SQ) model

A short introduction to SERVQUAL service quality SQ is acceptable and can be supported by the primary articles published by Berry, Parasuraman, and Zeithaml (1988). 20 years ago, SQ was initially developed as a conceptual model that had an outcome of 10 determinants of service quality: access, communication, competence, courtesy, credibility, security, tangibles, reliability, responsiveness, and understanding/knowing the customer (Parasuraman, Zeithaml, & Berry, 1985). They subsequently redefined ten service quality items into five dimensions: tangibles, reliability, responsiveness, assurance, and

empathy. Tangibility refers to the physical facilities, equipment, and appearance of personnel in the hotel industry. Reliability consists of the flexibility to perform the promised service dependably and accurately. Responsiveness is the compliance to assist customers and supply prompt service. Assurance is connected to the knowledge and courtesy of employees and also to their ability to inspire trust and confidence. For the last dimension, empathy, caring, and individualized attention are what the firm provides for patrons (Parasurama et al., 1988).

2.5.2. The DINESERV (DS) model

DINSERV model is a tool for measuring Service Quality in restaurants(Stevens, 1995). The model aimed to let restaurant operators and owners have some way to animate and acquire a summary of the service quality of their eating establishments. The DS model consists of 29items and holds service quality standards as established in five service quality areas: assurance, empathy, reliability, responsiveness, and tangible. DS was developed with relevance to SERVQUAL and the LODGESERV (lodging service) (Knutson et al. 1990). The DS was developed and located to suit the SQ's five dimensions. When satisfied customers visit the hotel repeatedly, the profit rises. Satisfied and returning customers that patronize a restaurant represent a set income and forward to others their positive experiences (Barber, Goodman & Goh, 2011). The researchers applied the DINESERVE model to evaluate food quality with five dimensions. The reason behind the selection of this model was it is proposed as a reliable, relatively simple tool for analyzing how hotel customers view a restaurant's food quality and its association with the character of the study for evaluating food quality attributes

2.6. Customer Satisfaction Score (CSAT)

According to the American Customer Satisfaction Index (ACSI), the Customer Satisfaction Score (CSAT) could be seen as a customer loyalty metric used by companies to measure how satisfied a customer is with a selected interaction or overall experience. It will be calculated by taking the number of satisfied customers (those who rated 4 or 5, supported 5-point likert scale) and dividing by the whole number of responses (Karin Olafson & ACSI, 2021).

2.7. Conceptual Framework

Figure 1 shows the study framework where the independent variables are depicted on the left side and the dependent variable is illustrated on the right side.

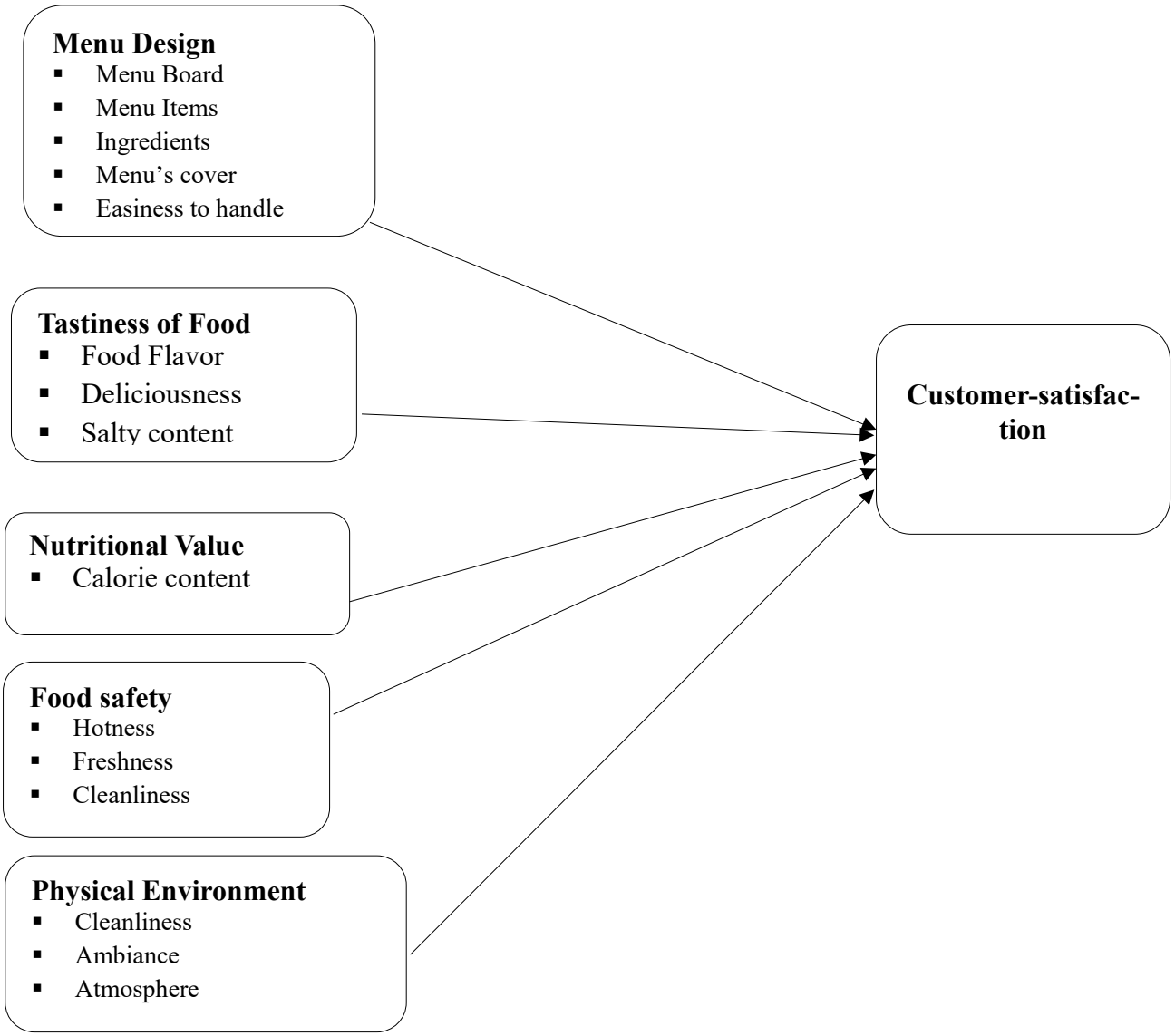

Figure 1: Conceptual framework Adapted from (Gagic et al., 2013; Canny, 2014)

3. Methods and Materials

3.1 Research Approach and Design

A mixed research approach (qualitative and quantitative) was applied. Accordingly, the researchers employed descriptive and explanatory research designs (i.e. concurrent triangulation design) to partly describe the prevailing situation and determine the relationship between food quality attributes and customer satisfaction, respectively.

3.3. Sampling Techniques and Sample Size Determinations

A non-probability accidental (convenience) sampling technique was employed to distribute the questionnaire to customers of six hotels rated four-star and purposive sampling was applied to collect data from food and beverage managers. Additionally, to determine the sample size for all four-star hotel customers, the formula developed by Cochran(1963) was applied as follows:

$$\mathbf{n} = \frac{\mathbf{P(Q)z^2}}{\mathbf{E^2}},$$

Where, **n** = is the sample size; $\mathbf{Z^2}$ = is the desired confidence level, 95% or the value of Z= 1.96; **P** = is the estimated proportion of an attribute that is present in the population; Q= 1-p; **E** = is the desired level of precision, 5% or E=0.05.

Therefore, the researchers determine the sample for this study based on the above formula;

$$\mathbf{n} = \frac{0.5(1-0.5)(1.96)^2}{(0.05)^2} = \mathbf{384}$$

3.4. Data Sources and Method of Data Analysis

This study mainly used primary data sources such as survey questionnaires collected from hotel customers and in-depth interviews with hotels, food, and beverage managers. To analyze the data, the researchers applied Statistical Package for Social Science (SPSS) software version 25. To effectively analyze the data collected from sample respondents, descriptive statistics (frequency, percentages mean andstandard deviation) and inferential statistics (Pearson correlation and multiple linear regression analysis) were used. Qualitative data collected from the interview was also analyzed using content analysis thematically.

3.5. Model specification

Multiple linear regression model was employed in the study because there are more than one independent variable and it is written as:

$$Y = \beta_o + \beta_1 X_1 + \beta_2 X_2 + \beta\ 3X3 + \beta\ 4X4 + \beta_5 X_5$$

$$Y = \beta_o + \beta_1 tf + \beta_2 nv + \beta_3 md + \beta_4 fs + \beta_5 pe$$

This equation assumes that customer satisfaction in hotels is a function of various attributesof food quality such as menu design, food safety, nutritional value, physical environment, andtastiness of the food. However, given that customer satisfaction is a very dynamic concept that can change itself continuously and can also be affected by many more factors than just the factors assumed in the above equation, it is enigmatic to capture and explain the overall customers' satisfaction by only using a static model depicted in the above equation (Wondirad & Agyeiwaah, 2016). To overcome such a challenge, it is necessary to introduce an error term (e) into the stated equation to capture attributes that are not included and to account for various errorsthat might arise from sampling administration, which, in the end affect the quality of the model (Song et al., 2003; Wondirad & Agyeiwaah, 2016). Therefore, the above equation can be rewritten as:

$$Y = \beta 0 + \beta 1TF + \beta 2NV + \beta 3MD + \beta 4FS + \beta 5PE + e$$

Where **Y**= Customer satisfaction; **TF** = Testiness of food; NV= Nutritional value; MD= Menu design; FS = Food safety; **PE** = Physical environment; and **e** = error term

β0: is a constant (coefficient of intercept) and **β 1, β 2, β 3, β 4, β 5;** are coefficients of variables.

3.6. Validity and Reliability

Validity is the most critical criterion and indicates the degree to which an instrument measures what it is supposed to measure. To ensure the quality of the research design, hospitality experts checked the content validity of the research questionnaire to look into the appropriateness of the questions and the scales of measurement and accordingly the refinement was made before administering the questionnaire to the respondents. And the reliability was also checked as follows (see Table 2):

Table 2: Cranach's Alpha Test

Items for food quality	Cranach's alpha	No' of Items	Remark
Testiness of Food	.791	4	**Good**
Menu Design	.881	5	**Good**
Nutritional value of food	.815	3	**Good**
The physical environment of food serving area	.812	3	**Good**
Food Safety	.919	4	**Excellent**
Customer Satisfaction	**.85**	**7**	**Good**

Source: (Researchers survey, 2022)

4. Results and Discussions

4.1. Samples Characteristics

Out of 384 questionnaires, 372 (96.6% response rate) respondents filled and returned the questionnaires properly. Among the 6 persons whom researchers approached for interview, all of them were willing for giving information.

Table 2: Demographic Profile of the Respondents

	Category	Frequency	Percentage (%)
Gender	Male	244	**63.5%**
	Female	128	**33.3%**
	Total	372	**96.9%**
Age	18-36	285	**74.2%**
	37-45	55	**14.3%**
	Above 45	32	**8.3%**
	Total	372	**96.9 %**
Educational level	University degree and above	340	**88.5 %**
	College graduate	29	**7.6 %**
	Secondary school	3	**0.8 %**
	Primary school and below	--	
Total		**372**	**96.9 %**

Source: Survey result, 2022

Out of 372 respondents, 244 (63.5%) were males while the remaining128 (33.3%) were females. And, the majority of the respondents were Ethiopians or domestic 58.9% (226) and the remaining 146 (38%) were from abroad. (See the details of respondents in Table 3.

Table 3: Customer Satisfaction

How did you satisfied with:	Very unsatisfied	Unsatisfied	Neutral	Satisfied	Very satisfied	Total satisfied
Friendliness of employees	15	98	193	34	32	66
The physical structure of the Hotel	74	132	113	42	11	53
Appearance of employees	23	93	23	182	51	233
Communications of staffs	49	38	201	29	55	84
Safety & security	48	140	101	50	33	83
Hotel's Tariff	49	91	122	67	42	109
Equipment of the Hotel	15	98	193	18	48	66

Source: Survey result, 2022

As portrayed in Table 4, customers of the hotels were asked to set their level of satisfaction with some attributes of customer satisfaction. By doing so, the researchers measured their level of satisfaction through applying the Customer Satisfaction Score (CSAT score), which is assumed that adding the sum of all positive responses collected divided by the total response, and then multiplied by 100 (Oliver, 1980) as follows:

$(66 + 53 + 233 + 84 + 83 + 109 + 66) \div 372 \quad X \; 100 \quad = 26.65\%$

As Oliver (1980) indicated, a survey response rate of 50% or higher is considered excellent in most circumstances, and 80% is considered golden although it varies by industry and area of business (See Table 4).

Table 4: Average CSAT scores of various industries

Industry	CAST Average
Smartphone /cellular phones	**80**
Banking	**78**
Personal computers/ Laptops	**78**
Property /Home Insurances	**78**
Supermarkets	**78**
Computer software	**76**
Financial advisors/ services	**77**
Hotels	**76**
Wireless phone services	**74**
Internet services	**65**
Airlines	**75**

Source: (American Customer Satisfaction Index)

As stated in the above table, the hotel industry's average CAST score is 76, but the study found thatthe average CSAT score in selected four-star rated hotels was 26.65%.

Table 5: Mean scores of food quality attributes on customer satisfaction (N= 372)

Constructs	Items:	Mean	SD
Food Taste	The food served was flavorful	2.28	**.967**
	The food served was too salty	2.85	**.988**
	The food served in this Hotel was appetizing	2.49	**1.1**
	The food served in this Hotel was too bland	2.96	**.996**
	Composite mean	**2.64**	**.76864**
Menu Design	This Hotel's food items are listed with their price	3.51	**.973**
	The food items are written clearly and precisely	3.17	**.957**
	The ingredients for all food items are well described	2.68	**1.07**
	The menu of this Hotel is easy and convenient to handle	3.01	**1.1**
	The menu's cover is attractive and interesting	3.52	**1.14**
	Composite mean	**3.22**	**.91271**
Nutritional value	The food served was with high calorie	2.69	**1.2**
	The hotel provides dietary food items for the customer in a diet	2.40	**1.27**
	The Hotel's food items lacked nutrients at all	2.89	**1.06**
	Composite mean	**2.84**	**.91385**
Food Safety	The food was served at the appropriate temperature	2.72	**1.40**
	The food served was hot for items ordered with hot	2.67	**1.06**
	The food served was fresh for items ordered with fresh	2.95	**.988**
	The food served was clean and neat	2.92	**1.15**
	Composite mean	**2.67**	**1.122**
Physical environment	The Hotel's Restaurants were convenient for dining	2.68	**1.07**
	The Hotel's Restaurants were clean and neat	2.96	**.996**
	The hotel's Restaurants were classic with relaxing music	2.92	**1.15**
	Composite mean	**2.90**	**.72011**

Source (survey compiled data, 2022)

The mean value of independent variables was calculated by Bhattacherjee (2012) and he also defined that while comparing elements, the mean score below 3.2 could be considered as low, the mean score from 3.35 up to 3.55 would be considered as reasonable, and a mean score above 3.55 could be viewed as high compared to the other variables in the same group. Table 6 shows that the findings revealed that menu design (mean =3.22, SD= .912),testiness of food quality (mean = 2.64, SD = .768), food safety (mean =2.67, SD=.1.122), nutritional value (mean = 2.84, SD = .913) and physical environment (mean =2.90, SD = .720). Hence, the mean indicates to what extent the sample group on average agrees ordoes not agree with these different statements and the lower the mean; more respondents disagree with the statement. The higher the mean, the more the respondents agree with the statement. The magnitudes of the mean score for all items as shown in the above table are ranging from 2.28 to 3.51, indicating that most of the customers were not satisfied and agreed with the food taste, menu design, food safety, nutritional value and physical environment of food serving area.

Food quality from a customer perspective was the first topic during the interview; almost all food and beverage managers raised the same idea about food quality from the customer's perspective. They stated it as follows:

> Our aim is providing or serving the right food items and getting the customer satisfied and healthy at the end of the meal. Not only this but also after the customer dines the food, it is expected by the hotel that customers will recommend their relatives, friends, or anyone else. Therefore, to do so, a satisfying customer always comes first and it can be done through carefully processing, preparing, and serving food with high quality.

Concerning improving customer's dining experience, managers were asked; how customer- dining experience could be improved and they explained that:

> The hotel could improve customer dining service in different ways like; offering excellent staff training for attentive employees, providing discounts and special offers mainly for loyal and corporate customers, improving the cleanliness of the whole premises because customers may have direct or indirect contact with the hotel's outlets, introducing the flavor food they can't get anywhere, giving brief description while serving customers order, and keeping things fresh.

Table6: Mean score of customer satisfaction (N = 372)

Items	Mean	Std. Deviation
Friendliness of the Hotel's staff	2.96	**.995**
Hotel's physical structure	2.42	**1.023**
Employee'sappearance	3.39	**1.178**
Employee's level of communication	3.01	**1.141**
Hotel's safety and security	2.68	**1.132**
Hotel room rate and product price	2.90	**1.183**
Hotel's equipment	**2.96**	**.995**

Source: (Survey result, 2022)

As depicted in Table 6, the magnitude of the mean score, which is 2.42 to 3.39 explained that most of the respondents responded that they were not satisfied with the friendliness of the hotel's staff, the physical structure of the hotel, hotel employee's appearance, safety and security of the hotel, hotel's tariff and hotel's equipment.

4.3. The relationship between food quality attributes and customer satisfaction

Before running regression analysis, the computation of correlation coefficients between independent and dependent variables is well suggested considering the problem of multi-colinearity, which exists when r is greater than 0.9 or several associations (values) are greater than 0.7 in the correlation matrix (Hair et al., 2010).

Accordingly, an attempt was made to first assess the relationship between customer satisfaction and independent variables, which are the tastiness of the food, menu design, nutritional value of food, food safety, and physical environment of the food serving area by computing Karl-Pearson correlation coefficients. The independent variables were found to be strongly and significantly associated with customer satisfaction, with varying degrees: testiness of food and customer satisfaction ($r=0.699$, $p<0.001$); menu design and customer satisfaction ($r=0.787$, $p<0.001$); nutritional value of food and customer satisfaction ($r=0.738$, $p<0.001$); food safety and customer satisfaction ($r=0.815$, $p<0.001$); and physical environment of food serving area and customer satisfaction ($r=0.780$, $p<0.001$).

4.4. Regression assumption

4.4.1. Multivariate Normality Assumption

The researchers used histograms and descriptive methods of kurtosis and skewness to check the normal distribution of data and homoscedasticity (See Table 7 and Figure 2).

Table 7: Normality Test (N= 372)

Descriptive Statistics				
Attributes	Skewness		Kurtosis	
	Statistic	Std. Error	Statistic	Std. Error
Customer satisfaction	-.660	.126	.168	.257
Testiness of food	.802	.126	.440	.252
Menu Design	.432	.126	-.272	.252
Food safety	.856	.126	-.148	.252
Nutritional value	1.155	.126	.708	.252
Physical environment	.426	.126	-.190	.252

Source: (Survey output, 2022)

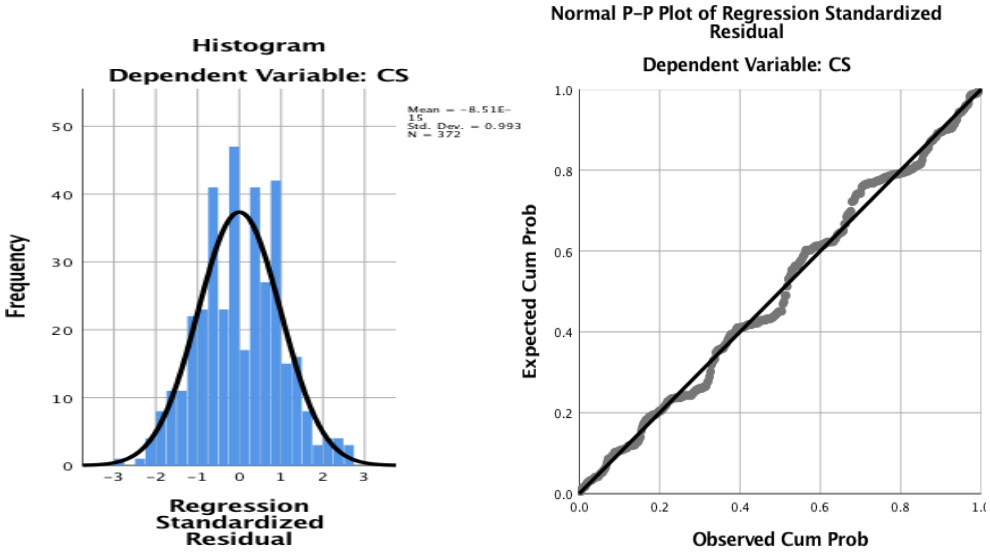

Figure 2: Histogram and Normal P plot of Residuals: (Survey Output, 2022)

4.4.2. MultiCo-Linearity Test

Multi co-linearity exists when independent variables are highly correlated or overlapping or sharing predictive powers that reduce the individual predictive power of the model. According to Field (2009), if there is perfect collinearity between predictors,it becomes impossible to obtain the unique estimates of the regression coefficients because there are an infinite combinations of coefficients that would work equally. For this purpose, tolerance and Variance Inflation Factor (VIF) statistics were adopted. A tolerance value less than 0.1 and a VIF value greater than 10 indicate a co-linearity problem (Field, 2009).

Table 8: Multi Co-Linearity Tests

Coefficients

Model		Co linearity Statistics	
		Tolerance	VIF
1	Testiness of food	.179	5.574
	Menu design	.277	3.610
	Food safety	.196	5.093
	Nutritional value	.162	6.181
	Physical environment	.465	2.151
a. Dependent Variable: customer satisfaction			

Source: (Survey, 2022)

Consequently, all tolerance values for the variables are greater than 0.01 and all VIF values are less than 10. As a result it proves that multi co-linearity is not a problem (see Table 9).

4.5. Regression Analysis

As can be seen from the model summary table 10, there is a strong positive and statisticallysignificant relationship between the dependent variables and the independent variables at (R = .906).R Square statistic tells us the proportion of variance in the dependent variable that is accounted by independent variables. In this case, the co-efficient determination adjusted (R^2) was 0.818. This implies that about 81.8% of the dependent variables (i.e., customer satisfaction) can be explained by the independent variables (i.e., testiness of food, menu design, food safety, the nutritional value of food, and physical environment of the food serving area), leaving about 18.2% to be explained by other exogenous factors. Adjusted R^2 values also indicate the overall effect of all independent variables on the dependent variable (see Table 10).

Table 9: Model summary

Model Summary					
Model	R	R Square	Adjusted RSquare	Error of theEstimate	Durbin-Watson
1	.906[a]	.820	.818	.29037	1.584

Predictors: (Constant), Testiness of food, Menu design, Food safety, Nutritional value of food,and Physical environment of food serving area; Dependent Variable: Customer satisfaction.

Source: (Survey data, 2022)

4.5.1. Analysis of Variance (ANOVA)

Table 10: ANOVA Test

ANOVA Test						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	140.593	5	28.119	333.489	.000[b]
	Residual	30.860	366	.084		
	Total	171.453	372			
a. Dependent Variable: Customer satisfaction						
b. Predictors: (Constant), Testiness of food, Menu design, Food safety, Nutritional value of food, and Physical environment of food serving area						

Source: (Survey data, 2022).

As depicted in Table 10, the value of the sum of squares is 140.593, the value of the degree of freedom is 5, and the value of mean square is 28.119. The most important part of the table is the F ratio. It is large (333.489) which shows that the model is effective in predicting the outcome variable. Generally, a good model should have a large F-ratio because the mean square of the regression will be bigger than the mean square residual.

4.5.2. Interpretation of regression coefficients

Table 11: Regression coefficients

Coefficients[a]						
Model		**UnstandardizedCoefficients**		**Standardized Coefficients**	**t**	**Sig.**
		B	Std. Error	Beta		
	(Constant)	0.311	.077		4.058	.000
	Menu design	0.274	.039	.368	7.021	.000
	Testiness of food	0.021	.037	.024	.570	.0569
	Food safety	0.002	030	.004	.077	.938
	Nutritionalvalue	0.161	.041	.217	3.928	.000
	Physical environment	0.453	.031	.480	14.748	.000
	a. Dependent Variable: Customer satisfaction					

Source: (Survey data, 2022).

The results of the standardized regression coefficient (Beta weight) shown in Table 12 for independent variables; menu design, the tastiness of the food, food safety, the nutritional value of food, and the physical environment of the food serving area were 0.368, 0.024, 0.004, 0.214, and 0.480 respectively. The significance levels for all independent variables except the tastiness of food and food safety were less than 0.05 (5%). The multiple linear regression analysis results revealed that there is a positive significant relationship between the independent variables and dependent variables.

From the coefficients table, the regression model is established in the following form.

$Y= \beta_o+\beta_1X_1+\beta_2X_{2+}.....\beta_PX_P$

CS = β_o + β_1MD+ β2TF+ β3FS+ β4NVF + β5PEH

Where: **CS**- is customer satisfaction; **MD** is menu design; **TF** is testiness of food; FS is food safety;NVF is the nutritional value of food; PEH is the physical environment of the food serving area, and **e** is an error. β0 is a constant (coefficient of intercept), β1β2β3β4β5 are the coefficients of each variable, respectively. Therefore, the regression equation for this study derives as:

CS = *.331+0.368md+0.24)* tf+ 0.004fs+0.217nvf +0.480peh

The relative importance of the factors (independent variables) in contributing to customer satisfaction was explained by their standardized beta coefficients. According to the equation established, taking all factors into zero, customer satisfaction as a dependent variable is predictedto be 0.331.

The finding data also indicated that taking all other independent variables to zero, a one-unit increase in the conducive physical environment of a food serving area will lead to an increase in customer satisfaction with a beta coefficient of 0.48; a unit increase in menu designing will lead to an increase in customer satisfaction with a beta coefficient of 0.36, a one unit increase in nutritional value of food will lead to increase in customer satisfaction with a beta coefficient of 0.21, a unit increase in the tastiness of food will lead to an increase in customer satisfaction with a beta coefficient of 0.24, a unit increase in food safety will lead to an increase in customer satisfaction with a beta coefficient of 0.04.

4.10.8. Hypothesis Testing

Table 12. Summary of Hypothesis Testing

Hypothesis	Test Criteria	Findings	Results
H1	There is a significant positive relationship between the tasteof foodand customer satisfaction.	β= 0.024; p=.569, positive & insignificant	**Not Accepted**
H2	There is a positive significant relationship between menu design andcustomer satisfaction.	β=. 368; p=. 000 Positive & significant	**Accepted**
H3	There is a positive significant relationship between food safety andcustomer satisfaction.	β=. 004; p=.938; positive & insignificant	**Not accepted**
H4	There is a positive significant relationship between the nutritional value offood and customer satisfaction.	β= .217; p=.000; Positive & significant	**Accepted**
H5	**There is a positive significant relationship between the physical environment and customer satisfaction.**	**β=. 480; p=.000 positive& Significant**	**Accepted**

5. Conclusions, Implications and Research Prioritization

5.1. Conclusions

Based on the results of the analysis and discussion on the effect of food quality on customer satisfaction, the study uncovered that the physical environment, menu design and nutritional value have significant effects on customer satisfaction.

The study revealed that the tastiness of the food was the last least important factor that affected customer satisfaction. The finding is also consistent with the work of Hanaysha (2016) revealed that the physical environment had a positive and significant effect on customer satisfaction. This is also reliable with the findings of Raajpoot (2010) used food presentation, menu design, and serving size to know food quality within the food industry and he found that menu design, food safety and food presentation had a positive and significant effect on customer satisfaction. The finding was also consistent with the work of Anita and Pratomo (2021) whose results revealed that food quality is usually has got to be a primary concern in the hospitality industry to create more reliable customer satisfaction. And, customer satisfaction significantly increased both customers' willingness to pay more

and their revisit intention (Choi, Joung, Choi & Kim, 2022). Likewise, quality attributes (aroma, color), nutritional value, the politeness and friendliness of service providers, availability and variety of the food, presentation of the food (Tiganis, Grigoroudis, & Chrysochou, 2023) as well as convenience and service quality (Chowdhury, 2023) have significant effects on customer satisfaction and revisit intention.

5.2. Practical Implications and Research Prioritizations

The following implications are drawn based on the findings and conclusions delineated concerning customer satisfaction

- ☞ The findings indicated that food quality has a significant positive effect on customer satisfaction. Greater support was reported in certain previous studies (Al-Tit, 2015; Nasir et al., 2014), which confirmed gourmet or food quality as one of the key drivers of customer satisfaction. Further, customer satisfaction is a prerequisite to maintain customer loyalty (Koay, Cheah, & Chang, 2022).
- ☞ Thus, **restaurant managers** are advised to emphasizethe key attributes of food quality that can stimulate customer satisfaction in the restaurant industry context. For Instance, customers tend to evaluate food quality based on certain factors such as proper freshness, reasonable temperature, variety, taste quality, and attractive presentation.
- ☞ According to Canny (2014), food quality is considered the main product of restaurants. For this reason, restaurant managers should focus on food quality to satisfy their customers and keep their value in the long term, and envisioned long-term business scope (Chowdhury, 2023).
- ☞ This study showed that the physical environment is one of the attributes of food quality, and findings show that it has a strongly significant and positive impact on customer satisfaction. It was found that the physical environment was a key driver of brand preference, and it is one of the crucial signals that customers tend to use for assessing the value they receive from a restaurant's offerings (Gagić et al., 2013; Haery & Badiezadeh, 2014; Ali et al., 2013; Yang & Chan, 2010; Namet et al., 2011; Ryu et al., 2012; Haider et al., 2010).
- ☞ Therefore, **restaurant managers** should constantly plan, construct, improve, and observe physical environments to form distinct images of their brands.
- ☞ Additionally, **restaurant managers** should emphasize the physical environment while designing their marketing strategies to attract more customers from different backgrounds. For example, using attractive decorations in diverse styles can deliver various messages to customers.
- ☞ Regarding menu design, it should convey enough information to customers so that they can properly choose menu items that they believe to provide the best benefits. Thus, menu design may assist customers in making more informed choices. As indicated in the current study, menu design, item perception, and item choice are interconnected constructs and all are important in restaurant consumers' purchase decisions. Therefore, **industry professionals** should pay far more attention

to menu design dimensions in every segment of the industry. Management actions should be planned to increase the attractiveness of positive menu items relying on menu design strategies.

- ☞ Generally, quality is dynamic; researchers recommend thate **hotel managers** should strive together to improve the quality of food products and servicethrough periodical quality assessment and evaluations.
- ☞ The **management** should ensure that employees, especially those who have direct contactwith customers, are always needed to be neat and well-groomed.
- ☞ This study did not consider the impact of price and technology on customer satisfaction. On top of that, this research comes up with unexpected output stating that food tastiness has no significant effect on customer satisfaction. Hence, the forthcoming scholars should verify the effects of food tastiness on customer satisfaction. Furthermore, the upcoming research may also emphasize how technology, price and other variables such as convenience, waiting time, trust and delivery affect quality of food and customer satisfaction.

Declarations/ Ethical Statements:

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